AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1. (Currently amended) An on/off switching system for at least one electronic ballast for at least one lamp, of at least one lighting fixture, said system comprising said at least one ballast having [[ ]]power electronics, said system further having a remote switch function in said at least one ballast, said remote switch function remotely located apart from said ballast, said remote switch function operating with a low amount of control current and little power loss, said on/off switching system further comprising at least one connection connecting said remotely located switch to a ballast resident ~~opto-isolator~~ isolation circuit with associated interfacing electronics within said at least one ballast, said at least one ballast providing high electrical isolation between ~~an external~~ said remote switch function and said ballast power electronics to each said lamp.

2. (Currently amended) The on/off switching system as in Claim 1 further comprising a plurality of lead wires connecting said remote ~~switch,~~ switch function, a low current power source, a light emitting diode (LED) at an input of said ~~opto-isolator~~ isolation circuit.

3. (Original) The on/off switching system as in Claim 2 wherein a current power source sufficient to operate external electronics is derived from said power input of said at least one ballast.

4. (Original) The on/off switching system as in Claim 2 wherein a current power source sufficient to operate external electronics is supplied externally.

5. (Original) The on/off switching system according to claim 1, wherein said connection is a modular phone connector, and said plurality of lead wires are telephone wire.

6. (Original) The on/off switching system according to claim 1, wherein said plurality of

lead wires are any, low voltage, signal grade or larger wire common to control systems.

7. (Original) The on/off switching system as in Claim 5 wherein said telephone wire is a flat multi-conductor cable.

8. (Currently amended) The on/off switching system as in Claim 7 wherein said at least one ballast is a plurality of ballasts of a plurality of light fixtures, each said light fixture having at least one lamp, each said ballast being connected by a multi-way coupler at each ballast and a plurality of said multi-conductor cables, one said cable having reversed connectors at each end connecting an output of said multi-way coupler to the input of the next said multi-way coupler, wherein said plurality of ballasts are connected in cascade configuration to said single remote switch such that all connecting ballasts of said plurality of ballasts respond to on/off switching action of said remote switch function.

9. (Currently amended) The on/off switching system as in Claim 1 wherein an isolated photo-transistor portion of said ~~opto-isolator~~ isolation circuit is controlled by light emitted by a light emitting diode (LED) within said ~~opto-isolator~~ isolation circuit.

10. (Original) The on/off switching system as in Claim 9 further comprising a collector-emitter junction controlling on/off operation of a high frequency inverter circuit used to provide AC power to each said lamp of each said lighting fixture.

11. (Currently amended) An on/off switching system for a plurality of electrical lighting fixtures comprising:

a control switch:

a connector having a first end connected to said control switch and said connector having a second end;

a plurality of lead wires wherein each said lead wire in said plurality of lead wire has a first end and a second end, said first end of each said wire in said plurality of lead wires is

coupled to said second end of said connector;

said plurality of lead wires has a first lead wire coupled to a first end of a first resistor;

a second end of said first resistor is connected to ~~a photo-isolator~~ isolation circuit, said ~~photo-isolator~~ isolation circuit providing high electrical isolation between an external control signal and power electronics of at least one electronic ballast;

said plurality of lead wires has a second lead wire coupled to a first end of a second resistor;

a second end of said second resistor is coupled to a first direct current power input terminal and a first end of a reverse polarity protector circuit;

said first end of said reverse polarity protector is coupled to a first end of a third resistor and to a high frequency inverter circuit, and said high frequency inverter circuit has a second end coupled to a second direct power input terminal;

a second end of said third resistor is coupled to a base terminal on a transistor and to said ~~photo-isolator~~ isolation circuit;

an emitter terminal on said transistor is coupled to said ~~photo-isolator~~ isolation circuit and to said second direct current power input terminal;

a collector terminal on said transistor is coupled to a cathode terminal of a first diode and to a cathode terminal of a second diode;

said first diode and said second diode each having an anode terminal coupled to said high frequency inverter circuit;

a third lead wire in said plurality of lead wires is coupled to a first end of a fourth resistor and to said ~~photo-isolator~~ isolation circuit;

said fourth resistor having a second end coupled to said second direct current power input terminal;

said high frequency inverter circuit has at least one output terminal and a ground terminal; and,

each output terminal in said at least one output terminal is coupled to a lamp.

12. (Original) The on/off switching system according to claim 11, wherein said connector

is a modular phone jack, and said plurality of lead wires are telephone wire.

13. (Original) The on/off switching system according to claim 11, wherein said plurality of lead wires are low voltage wire common to control systems.

14. (Currently amended) The on/off switching system according to claim 11 wherein said ~~photo-isolator~~ isolation circuit comprises:

an anode terminal of a light emitting diode coupled to said second end of said first resistor and a cathode terminal of said light emitting diode coupled to said first end of said fourth resistor; a collector terminal of a photo-transistor coupled to said base terminal of said first transistor and to said second end of said third resistor; and

an emitter terminal of said photo-transistor is coupled to said emitter terminal of said first transistor, said second end of said reverse polarity protector, said second end of said fourth resistor, and said second direct current power input terminal.

15. (Currently amended) An on/off switching system for a plurality of ballasts for a plurality of electrical lighting fixtures comprising:

~~a photo-isolator~~ an isolation integrated circuit providing high electrical isolation between an external control signal and power electronics in at least one ballast;

wherein, to turn on said at least one ballast, a power source supplies voltage to said ~~isolator~~ isolation circuit through ~~said~~ a remote switch,

said circuit having a light from an LED exciting a photo transistor reducing its equivalent resistance into conduction thereby, causing a higher current to flow in ~~said~~ a resistor, said resistor and said photo transistor forming a voltage divider,

said voltage divider causing a base-emitter voltage of a control transistor to fall below conduction, causing its collector-emitter junction to become highly resistive and non-conducting, thus blocking a current path for diodes to ~~said~~ a power supply return and allowing inverter gates to remain in a high impedance state and thus unencumbered to function as part of ~~the~~ a self-excited power oscillation inverter servicing ~~said~~ at least one lamp driven by said at least one

ballast,

wherein further when no voltage is applied on an input of said ~~isolator~~ isolation circuit, said gates are clamped to a potential of a return of said power supply, causing said gates to be placed in a non-conductive state, thereby interrupting said power oscillator/inverter and causing said at least one lamp driven by said at least one ballast to go off.

16. (Currently amended) The on/off switching system according to claim 1, wherein said on/off switching system is applied to ~~the~~ a blinking function used an as attraction in lighted advertising signs.

17. (Currently amended) The on/off switching system according to claim 1, in which the ~~external on/off~~ remote switch function is controlled to switch rapidly and with a proportional on time that is proportional to a controlled power level.

18. (Currently amended) The on/off switching system according to claim 1, in which the ~~external~~ remote switch function is provided by an electronic type switching arrangement.

19. (Original) The on/off switching system according to claim 18, wherein said electronic switching arrangement includes at least one transistor.

20. (Currently amended) The on/off switching system according to claim 1, in which ~~external~~ remote switch function is provided by an electronic system that is programmable.

21. (Currently amended) The on/off switching system as in Claim 1 wherein said remote switch function is a fully isolated remote switch.

22. (Currently amended) An on/off switching function system for at least one electronically interfaceable end-use appliance device which functions through on/off control, said device having an on/off switch function, said system having power electronics, said system

further having a remote switch function, said remote switch function remotely located apart from said device resident power electronics, said remote switch function operating with a low amount of control current and little power loss, said on/off switching system further comprising at least one connection connecting said remotely located switch function to a ~~opto-isolator~~ isolation circuit with high electrical isolation to said power electronics, said power electronics providing electrical computability between said switch function and the operation of said device.

23. (Original) The on/off switching system as in Claim 22 wherein said device is a motor driven appliance.

24. (Original) The on/off switching system as in Claim 22 wherein said device is a electrical heater.

25. (Original) The on/off switching system as in Claim 22 wherein said device is industrial control equipment.

26. (Original) The on/off switching system as in Claim 22 wherein said device or appliance benefits from proportional on/off control as a means for power modulations.

27. (Currently amended) The on/off switching system as in Claim 22 further comprising a plurality of lead wires connecting said remote switch, a low current power source and a light emitting diode (LED) at an input of said ~~opto-isolator~~ isolation circuit.

28. (Currently amended) The on/off switching system as in Claim 27 wherein a current power source sufficient to operate external electronics is derived from said power input of said power electronics ~~module~~.

29. (Original) The on/off switching system as in Claim 27 wherein a current power source sufficient to operate external electronics is supplied externally.

30. (Original) The on/off switching system according to claim 22 wherein said connection is a modular phone connector, and said plurality of lead wires are telephone wire.

31. (Original) The on/off switching system according to claim 30, wherein said plurality of lead wires are any, low voltage, signal grade or larger wire common to control systems.

32. (Original) The on/off switching system as in Claim 30 wherein said telephone wire is a flat multi-conductor cable.

33. (Currently amended) The on/off switching system as in Claim 32 wherein said at least one device is a plurality of devices, each said power electronics ~~module~~ being connected by a multi-way coupler at each power electronics ~~module~~ and a plurality of said flat multi-conductor cables, one said cable having reversed connectors at each end connecting an output of said multi-way coupler to the input of the next said multi-way coupler, wherein said plurality of devices with power electronics are connected in cascade configuration to said single remote switch function such that all connecting power electronics ~~modules~~ of said plurality of power electronics ~~modules~~ respond to on/off switching action of said remote switch function.

34. (Currently amended) The on/off switching system as in Claim 22 wherein an isolated photo-transistor portion of said ~~opto-isolator~~ isolation circuit is controlled by light emitted by a light emitting diode (LED) within said ~~opto-isolator~~ isolation circuit.

35. (Original) The on/off switching system as in Claim 34 further comprising a collector-emitter junction controlling on/off operation of a high frequency inverter circuit used to provide AC power to each said device.

36. (Currently amended) An on/off switching function system applied with proportional light dimming control, ~~said~~ proportional light dimming control system having as its interface the

system as in Claim 1, said proportional light dimming control system comprising an electronic ballast having an optically isolated on/off function interfacing with remote circuitry providing pulse width modulation to said optically isolated interface control to cause proportional light dimming, said remote circuitry including a fixed frequency oscillator influenced by a pulse-width modulator controlled by a voltage setting, wherein said proportional pulses cause constant current to flow remotely through a light emitting diode in an optical isolator in said electronic ballast, ~~said~~ a constant current driver insuring a predetermined proper current to said light emitting diode in compensation for variable cable lengths, wherein a phototransistor/switch of said optical isolator complies with ~~the~~ a periodic "on" duty cycle set remotely and causes the power in said ballast circuitry to be applied to the lamp with variable intensity.

37. (Currently amended) An on/off switching system applied to at least one electrical end-use appliance compatible with electronic on/off control as in Claim 22 in which an optically isolating interface utilizes circuitry providing pulse width modulation to said optically isolated interface control to cause proportional on/off control, ~~said~~ a remote circuitry including a fixed frequency oscillator influenced by a pulse-width modulator controlled by a voltage setting, wherein ~~said~~ proportional pulses cause constant current to flow remotely through a light emitting diode in an optical isolator in power electronics, ~~said~~ a constant current driver insuring a predetermined proper current to said light emitting diode in compensation for variable cable lengths, wherein a phototransistor/switch of said optical isolator complies with ~~the~~ a periodic "on" duty cycle set remotely and causes the power in said circuitry to be applied to said end use appliance device with variable intensity, said proportional on/off control system influencing very low power remote control of power levied in various end-use appliances benefiting from proportional on/off control as a means for power modulation.